



FACTA UNIVERSITATIS

Series: **Physics, Chemistry and Technology** Vol. 16, N° 1, Special Issue, 2018, p. 81
49th International Symposium on Essential Oils (ISEO2018) • Book of Abstracts

PP17. Influence of light quality on *in vitro* growth and essential-oil composition of *Chenopodium ambrosioides* L.

José Eduardo Brasil P. Pinto^{1*}, Alexandre Alves de Carvalho¹,
Suzan Kelly Vilela Bertolucci¹

Keywords: medicinal plant, blue light, red light, micropropagation

Chenopodium ambrosioides L. (CA) is a medicinal plant extensively used for its anthelmintic, anti-inflammatory, antileishmanial and antidiarrheal properties. One of the most important factors that regulates the growth and development of plants *in vitro* is light. Therefore, the aim of this study was to determine how spectral composition of light influences *in vitro* growth and chemical composition of CA essential oil (EO). To do that, nodal segments of CA were inoculated in a growth medium and cultured for 40 days in a growth room with different diodes emitting lights: blue (B), red (R), white (W), combinations of blue and red (B:R=1:1; 2:1; 1:2, respectively) and cool white fluorescent lamp (F). The chemical profiles of CA plant specimens grown under lights of different quality were mutually compared using principal component analysis (PCA). The results of PCA showed significant light-quality-related variations in EO profiles (Fig. 1): monochromatic B light inhibited the biosynthesis of ascaridole, while W, B:R=1:2 and 2:1 lights promoted ascaridole production. The herein obtained results suggest that explants kept in a growth room with W or B:R=2:1 lights had optimal chemical profiles.

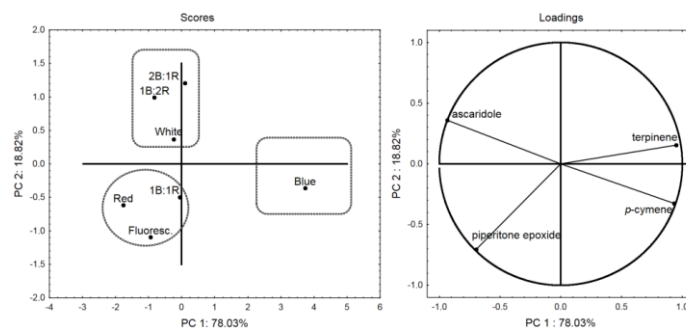


Fig. 1. PCA comparison of the chemical profiles of EOs obtained from CA grown under lights of different spectral composition

References:

[1] Silva, S.T. et al., 2017. Plant Cell Tiss. Organ. 129, 501–510.

Acknowledgments: Thank for financial support: CNPq, FAPEMIG and CAPES.

¹Departament of Agronomy, Medicinal Plants, Lavras University, C. P. 3037, Lavras, MG, CEP 37200-000, Brazil.

*Corresponding author. Email: jeduardo@dag.ufla.br